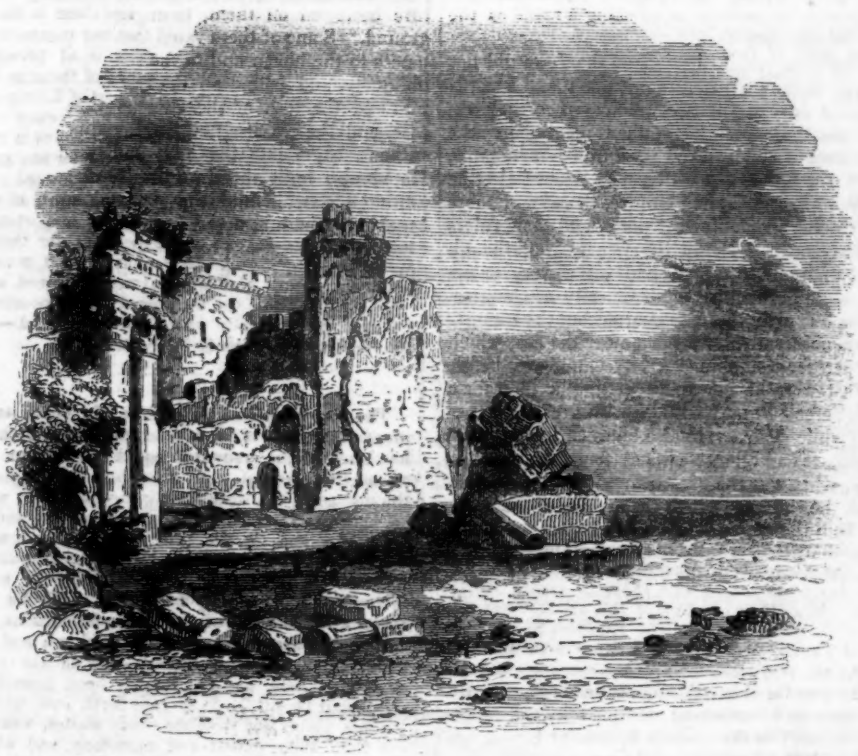
THE PENNY MAGAZINE

OF THE

Society for the Diffusion of Useful Knowledge.

405.] PUBLISHED EVERY SATURDAY. JULY 28, 1838.

THE SEA-COAST OF PALESTINE.



[Ruins of Cæsarea, in Palestine.]

THE sea-coast of Palestine is not naturally adapted for a maritime people: there is not a good harbour to be found on it. The best is that of Acre, of which, though it is called "the maritime key of Palestine," Dr. Clarke says, "The port is indeed bad, but it is better than any other along the coast." Joppa (now Jaffa or Yaffa), which was the only port the Jews possessed while they existed as an independent nation, at least the only place entitled to the name of a national port, is one of the worst on the Mediterranean, and only rose into importance on account of its vicinity to Jerusalem, from which it lies about forty miles west. Even the slip of coast which was possessed by that wonderful people the Phœnicians is not at all adapted to the wants of modern navigation. Speaking of the country while it formed a portion of the Roman empire, Gibbon, in his summary way, says, "Phœnicia and Palestine were sometimes annexed to, and sometimes separated from, the jurisdiction of Syria. The former of these was a narrow and rocky coast; the latter was a territory scarcely superior to Wales, either in fertility* or extent. Yet Phœnicia and Palestine will for ever live in the memory of mankind; since America, as well as Europe, has received letters from the one and religion from the other." In a note he adds, "The progress of religion is well known. The use of letters was introduced among the savages of Europe about fifteen hundred years before Christ; and the Europeans carried them to America about fifteen centuries after the Christian æra. But in a period of three thousand years the Phœnician alphabet received considerable alterations as it passed through the hands of the Greeks and Romans."

By looking along the outline of the coast, as delineated in a map, the reader will remark the more important names which give interest to a shore naturally rugged and dangerous. Gaza and Ascalon, the "two brides," will remind him of the Philistines, who gave the name of Palestine to the country, and of their great antagonist Samson, who carried off the gates of the one, and provided himself with raiment from the inhabitants of the other. It was prophesied that "Gaza shall be forsaken, and Ashkelon a desolation." The present Gaza is a modern town that arose on the ruins of the old. Alexander the Great was twice wounded during his siege of Gaza, and the town also suffered from a furious insurrection of the Jews; and this latter circumstance is considered to be an explanation of Luke's words, when, in recording the directions which Philip received, he says that he was ordered to go "toward the south unto the way that goeth down from Jerusalem unto Gaza, *which is*

* It is not quite correct to compare Palestine and Wales as to fertility. The reader familiar with the Biblical history of the Jews will recollect the great numbers maintained from the produce of the soil of Judea in the flourishing times of the monarchy. Even now it is a fine country, and might be rendered very fertile,

desert." As for Ascalon, the birth-place of Herod the Great, it is "a desolation." Farther on is Joppa, now Jaffa, beyond it Cæsarea, which arose, as it were, in a day, at the will of Herod, then the famous Acre, with the noble promontory of Carmel; and beyond these again the territory of the once powerful "merchant-princes," whose ships, in the far-past history of our world, floated on unknown seas, and carried the civilizing influence of commerce to the most distant "isles of the Gentiles." The whole line of coast is comparatively a ruin; but the silence and desolation of that part of it which was once animated by the life and bustle of the people of Tyre and Sidon, renders it perhaps as affecting a scene as the traveller can contemplate.

The laws, customs, and institutions of the Jews did not dispose them to become a maritime people; and accordingly in the best days of their monarchy, when they aspired to the possession of a navy, their neighbours the Phœnicians were their instructors, guides, merchants, and carriers. After the fall of Tyre, and when Palestine became a portion of the Roman empire, there was more commercial activity in the Jewish ports, and their rulers gave it encouragement. Herod the Great, who, though he was a bad man and a tyrant, had yet a very enterprising and magnificent spirit, built the city of Cæsarea, of which Josephus gives the following account:—

"Upon his observation of a place near the sea, which was very proper for containing a city, and was before called Strato's tower, he set about getting a plan for a city there, and erected many edifices with great diligence all over it, of white stone. He also adorned it with most sumptuous palaces and large edifices for containing the people; and, what was the greatest and most laborious work of all, he adorned it with a haven that was always free from the waves of the sea. Its largeness was not less than the Peiræus [at Athens], and had towards the city a double station for the ships. It was of excellent workmanship, which was the more remarkable, being built in a place that of itself was not suitable to such noble structures, but was perfected by materials from other places, at very great expenses. The city is situate in Phœnicia, [strictly Cæsarea was, in Judea, not on the slip of sea-coast occupied by the people of Tyre and Sidon.] in the passage by sea to Egypt, between Joppa and Dora, which are lesser maritime cities, and not fit for havens, on account of the impetuous south winds that beat upon them, which rolling the sands that come from the sea against the shores, do not admit of ships lying in their station; hence the merchants are generally there forced to ride at their anchors in the sea itself. So Herod endeavoured to rectify this inconvenience, and laid out such a compass towards the land, as might be sufficient for a haven, wherein the great ships might lie in safety. And this he effected by letting down vast stones of above fifty feet in length, not less than eighteen in breadth, and nine in depth, into twenty fathoms deep; and as some were less, so were others bigger than those dimensions. This mole, which he built by the sea-side, was two hundred feet wide; the half of which was opposed to the current of the waves, so as to keep off those waves which were to break upon them; but the other half had upon it a wall, with several towers, the largest of which was named Drusus, and was a work of very great excellence, and had its name from Drusus, the son-in-law of Cæsar, who died young. There was also a great number of arches where the mariners dwelt. There was also before them a quay, which ran round the entire haven, and was a most agreeable walk to such as had a mind to that exercise. But the entrance or mouth of the port was made on the north quarter, on which side was the stillest of the winds of all in this place. And the basis of the whole circuit on the left hand, as you enter the port, supported a round turret, made very strong, to resist the greatest waves; while on the other hand, stood upright two vast stones joined together, and those each of them larger than the turret, which was over against them. Now there were edifices all along the circular haven, made of the most polished stone, with a certain elevation, whereon was erected a temple, that was seen a great way off by those that were sailing for that haven, and had in it two statues, the one of Rome, the other of Cæsar. The city itself was called Cæsarea [like several other cities, in compliment to the emperor], and was also built of fine materials, and was of a fine structure. Nay, the very subterranean vaults and cellars had no less of architecture bestowed on them, than had the building above ground. Some of these vaults carried things at even distances to the haven and to the sea; but one of them ran obliquely, and bound all the rest together, that both the rain and the filth of the citizens were carried off with ease, and the sea itself, upon the flux of the tide from without, came into the city, and washed it all clean. Herod also built therein a theatre of stone, and on the south quarter, behind the port, an amphitheatre also, capable of holding a vast number of men, and conveniently situated for a prospect to the sea. This city was thus finished in twelve years, at the expense of Herod."

Cæsarea, thus magnificently built and adorned, became the virtual capital of Judea under the Romans. It was Herod's royal residence, and the residence of the Roman governors. Herod founded games, to be celebrated every fifth year, in honour of Cæsar, and of the building of the place; and it was at one of the celebrations of these games, that his grandson, Herod Agrippa, died miserably, as recorded in the 12th chapter of the Acts of the Apostles. It was the scene of Paul's imprisonment, when he was rescued from the violence of the mob, and sent down from Jerusalem, out of the reach of the conspirators; and here he made his celebrated orations, the one in defence of himself, when he was accused of being "a pestilent fellow," and the other before King Agrippa, in explanation of his character and conduct. From hence also he embarked on his perilous voyage, after he had made his "appeal unto Cæsar."

Cæsarea subsisted with various fluctuations till after the Crusades. Dr. Clarke, who viewed Cæsarea from off the coast, says, "Perhaps there has not been in the history of the world an example of any city that in so short a space of time rose to such an extraordinary height of splendour as did this of Cæsarea, or that exhibits a more awful contrast to its former magnificence, by the present desolate appearance of its ruins. Its theatres, once resounding with the shouts of multitudes, echo no other sounds than the nightly cries of animals roaming for their prey. Of its gorgeous palaces and temples, enriched with the choicest works of art, and decorated with the most precious marbles, scarcely a trace can be discerned. Within the space of twelve years after laying the foundation, from an obscure fortress (called the tower of Strato, as it is said, from the Greek who founded it), it became the most celebrated and flourishing city of all Syria."

Mr. Buckingham, in his 'Travels in Palestine,' gives a minute description of the ruins of Cæsarea, and says that they fully justify the description given by Josephus of its magnificence. Travellers still more recent speak of the utter desolation of the place. Captain Skinner, looking down from the promontory of Carmel, says, "The first place towards Jaffa is the modern village of Atlieb, the Castel Pelegrino of the Crusades, and the Dor of the Hebrews. Beyond that,—its columns and buttresses, a confused mass, stretching into the waves, over which, from this distance even, the surf may be seen to break,—is the celebrated city of Cæsarea."

The Rev. Vere Monro, in his 'Summer Ramble in Syria,' adds, "The imagination, dwelling upon the busy streets and stately colonnades, still inquires, where is Cæsarea? It lies entombed beneath the little mounds

that are barely marked upon the surface; so lowly, they could scarcely serve to hide the mouldering shreds of a peasant's cot; and it should seem as if the very stones had rotted in the soil! . . . . . Near the wall on the east side of the port are some large subterranean arches, the remains of those sewers or depôts for grain with which Herod completed the underwork of the city. In the southern gateway are still perfect the marble sockets, and the frame or groove for the portcullis. The spot continues to bear the name of *Kaisaria*." Captains Irby and Mangles mention that there is a small village here, partly constructed out of the ruins of Cæsarea

A REMARKABLE INSTANCE OF THE ABSENCE OF ANIMAL INSTINCT

[From a Correspondent.]

THERE are few things that have more interested the naturalist and philosopher than animal instinct. To adduce examples of the wonderful extent to which we sometimes find it carried, or to illustrate its general nicety or correctness, seems alike unnecessary to all who are conversant with the animal and vegetable creation. My purpose is not, therefore, to record some newly-discovered power of the principle of instinct, but, on the contrary, to relate an instance where I knew it to fail in a very remarkable degree; and without hazarding any opinion of my own thereupon, simply to relate the facts as they came under my own personal observation.

Several years ago I resided on the borders of a small Alpine lake embosomed among one of the many ridges of the Alleghany Mountains. At that period the lake was surrounded by the native forests, except along the western shore, where a rude road had been cut through the underwood (which consisted almost entirely of the Kalmia Latifolia, or narrow-leaved laurel) to a distant settlement. I had learned from various sources that this plant (lovely as are its white-and-pink blossoms in early summer) possessed poisonous attributes; but I had never been a witness to its pernicious effects upon any species of animal. A winter or two previous I had been in the vicinity of a settlement where many persons were affected in a peculiar manner, and it was rumoured that their indisposition proceeded from their having eaten of the birds commonly known by the name of New England partridges, or Virginia pheasants, which pheasants, in consequence of the severity of the season, had fed upon this species of laurel, through which their flesh had become of a deleterious quality. Whether or not this really was the case I cannot distinctly state, but at any rate it was the general opinion of the people of the neighbourhood, as well as that of the medical gentleman who was called in to administer to the affected persons.

In the region of country alluded to, winter usually sets in about the middle of December, that is, the keen frost becomes uninterrupted, and snow falls to a considerable depth about the same time; but what I am about to relate concerning a remarkable absence of the principle of instinct took place in the latter part of the month of November, for winter came on some weeks earlier than usual that season, and with all its wonted severity. The country then being *new*, we (the settlers) found it necessary to repair to older parts of the country to purchase farm stock, and it was in the preceding spring that I had bought a small flock of sheep in the older settlements on the Genesee River. During the summer they had not been exclusively confined to the enclosed ground, for they had enjoyed the privilege of pasturing by the sides of the roads intersecting the woods; or, in short, wherever they could find any thing to feed upon; for they soon became so thoroughly domesticated by feeding them with a little common salt once or twice in the week, that they showed no disposition to wander far from home; for in the woods there was little or nothing to tempt them to go astray.

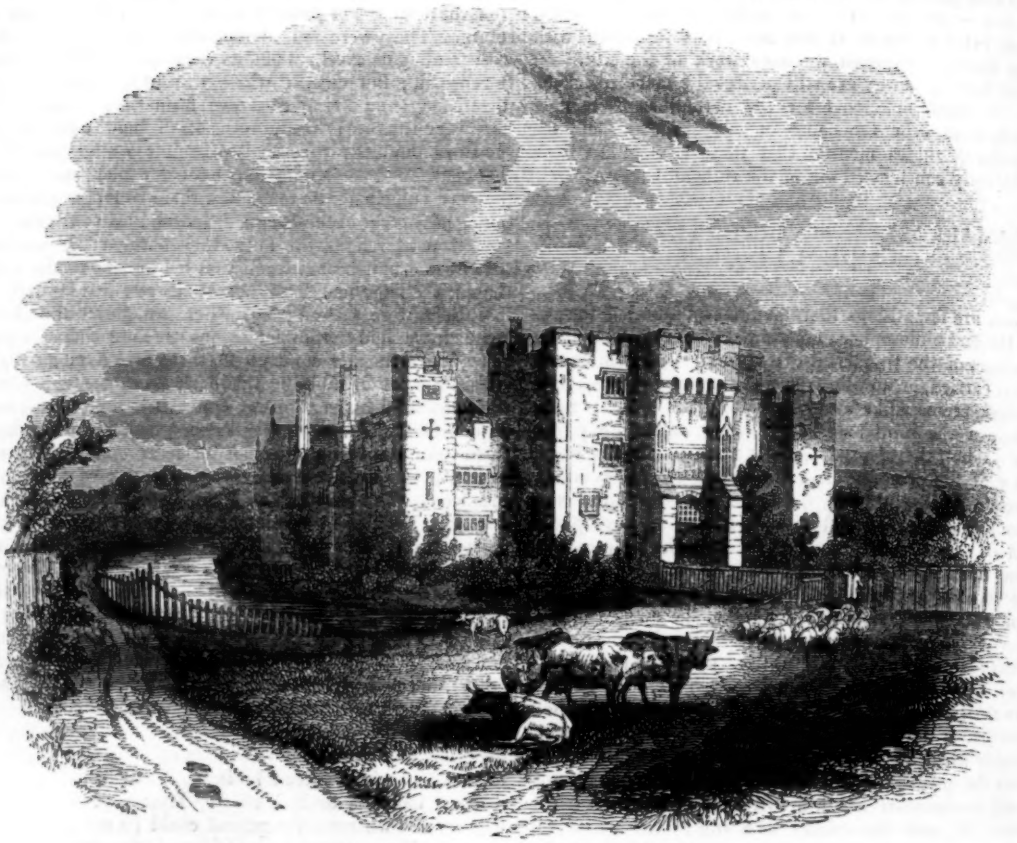
When the snow fell to a considerable depth in the latter part of November, the sheep were then confined to a large yard which adjoined the barn containing the hay, as well as the various summer crops; for it is impossible for live-stock to procure any portion of their sustenance from the meadows or pastures when once winter has really set in. They were fed abundantly with hay, and notwithstanding its excellent quality they by no means seemed to relish it; but on the whole exhibited symptoms of dissatisfaction at being shut out from their accustomed pasturage thus early in the season. I believe it was on the third day after they had gone into winter-quarters, that they found an opening in the fence which surrounded the yard sufficiently large to allow them to escape; when, taking advantage of the circumstance, and led by the curly-horned patriarch of the flock, they wandered along the narrow and half-beaten track that led along the shore of the lake. They had been absent two or three hours before they were missed; but when we found they had escaped, we had no difficulty in tracking them in the snow, and presently came upon them while many were still in the act of nibbling the dark-green leaves of the inviting laurel bushes. Our apprehensions for the consequences were immediately raised; and having driven them back to the small enclosure from which they had escaped, we anxiously watched the result of their imprudence. In about half an hour several of them began to exhibit decided symptoms of the baneful effects of the deleterious shrub; for many of them showed signs of great agony, lost the use of their limbs, and finally became swollen to a large size. The experience of an old settler, who was reputed as skilful in all matters appertaining to farm stock, was immediately called into our assistance: he professed to know of two or three antidotes; but with all his vaunted knowledge it soon became evident that a considerable number of the sufferers would fall victims to their own imprudence. One of the remedies which we attempted was warm milk with a moderate quantity of salt dissolved in it, and which, in a few instances, had the desired effect. It seemed to produce nausea, and wherever the patient could be made to vomit up the half-masticated leaves of laurel, a speedy recovery ensued. The old patriarch was the first that fell a victim; he led the way into the woods, and probably had been the first to taste of the forbidden laurel.

I will not pursue the matter further. About half of the flock died in a few hours; and such as had partaken of the poison in smaller quantities, and recovered, shed most of their wool long before the warm season came on; so that it became necessary to supply them with artificial clothing. Some few were not at all affected: these probably had been saved by that which failed in the others—animal instinct. But how shall we account for four-fifths of the flock being destitute of that instinctive principle which saved the rest? for the whole of them had been purchased from the same place, brought up together, and during the summer had had daily opportunities of feeding upon laurel, had they been so disposed. It certainly was not hunger that drove them to the commission of this imprudent deed, for they had an abundant supply of food, and that of good quality. The only way that I could account for this unfortunate occurrence was, that in consequence of their being deprived of pasturage at an unusually early period, and having accidentally wandered into the vicinity of the brakes of laurel, whose lovely green contrasted so temptingly with the surrounding snow, the excitement had been too powerful to be resisted by instinct, which, not being aided by reason, had given way in the hour of temptation and trial.

I will only further remark, that during a subsequent residence of several years in the same vicinity, I have never known, either personally or by report, a recurrence of a similar accident; although on one or two occasions winter set in at as early a period, the quantity of snow being equally great, and the flocks of sheep exposed to precisely similar temptations.

CASTLE AND VILLAGE OF HEVER, IN KENT.

[From a Correspondent.]



[Hever Castle.—From an Original Sketch.]

On leaving Four Elms, near Westerham, I took a winding bye-path bordered by woods, in a country which a farmer from Crockinhill characterised as "rather mountaneous," and after a hearty tramp of three miles, came in sight of Hever, with its church and castle; the latter the seat of the Boleyns, having been purchased by the great-grandfather of Anne Boleyn, a wealthy mercer of London, who was lord-mayor in 1459. It was the occasional residence of Anne Boleyn before she became the wife of Henry VIII. She was at Hever when she received an intimation from her father of his successful endeavours to have his daughter placed under Queen Catherine. Her reply in French is still extant. She went to court shortly afterwards, at the age of little more than twenty, and soon excited the susceptible feelings of the king. Wolsey's policy was to exclude from the royal presence any one whom Henry was likely to regard with too much favour, and Anne, after a short absence, returned to Hever, unconscious, it is said, of the king's regard for her. Again recalled to court, she soon afterwards, between July and October, 1527, received from Henry himself a declaration of his attachment. In May, 1528, she was at Hever, and received letters from the king, and he appears to have visited her here, and to have prevailed upon her to return to court, a determination which she subsequently changed. Henry's letters to Anne during this period are manly, sensible, and tender, and six years' anxiety respecting his divorce with Catherine kept alive his affections, which might otherwise have cooled. It was not until January 25, 1533, that his marriage with Anne took place; on the 1st of June, she was crowned; on the 7th of September, she had a daughter, afterwards Queen Elizabeth. In little more than three years, the picture is reversed. On the 1st of May, 1533, the queen was suddenly arrested and examined, and on the day following sent to the Tower; her trial followed on the 15th of the same month, and on the 19th she was executed at the age of twenty-six, the very prime of womanhood, after having once been the object of the romantic affection of her sovereign. On the death of Anne's father, whom Henry had created Earl of Wiltshire, Hever became the property of the crown, and when subsequently he had divorced Anne of Cleves, it was granted to her, with the manor, for the term of her natural life, so long as she should remain in England. Here she resided, and several of her letters are dated from the castle, where she died in 1556, having probably passed her life here more tranquilly and happily than she did the short period during which she resided in the palaces of her cruel and capricous husband. In the following year the property was sold by commissioners appointed by the crown. The connection of the history of these two unfortunate queens with the Castle of Hever gave me additional motives for carefully inspecting its recesses.

But I shall first describe the village, which is rather a miserable hamlet, on the brow of a hill, at the foot of which the Eden, a small but well watered branch of the Medway, winds pleasantly through a cultivated vale, and, at the distance of about a quarter of a mile, encircles, and adds to the defence, of what was once the stronghold of the "*Hevres*," the founders of Hever Castle. The road

to this spot descends a hill, from the top of which, as tradition reports, Henry VIII., on his visits to Anne, is said to have sounded his bugle, as a signal of his approach. This may pass as an agreeable embellishment of the story of their courtship. The village, like so many others in Kent, exhibits few signs of active life. The population is even less than it was some twenty years ago, and although some five or six cottages have been built during that period, there are in too many instances more than one family residing in each house; there being, in fact, 102 families in 73 houses.

Hever Castle affords a good example of those residences which arose out of the disturbed state of society during the earlier periods of our history after the Conquest, which suffered a partial dilapidation during the conflicts of the factions of York and Lancaster, and once more rose, in less martial forms, under the governments of Elizabeth and James. It was in the reign of Edward III. that William de Hevre obtained the king's licence to "embattle his manor-house." It consists of "a castle," to which a quadrangular house is attached, the whole surrounded by a moat, beyond which several outbuildings, now used as barns, were arranged, to meet the wants of extra visitors, and the many festivals, religious and secular, of those "good old times." The elevation or front of the castle is composed of a central keep, pierced by a gate, crowned by strongly projecting machicolations, and flanked by two square towers. The face of the keep is decorated with some well executed tracery, of a much later date than the massive walls on which they repose. The gate is of vast strength, and seems to have been the point, of all others, on which the architect bestowed the utmost resources of his defensive skill. First, a deep-browed doorway is passed, defended by a strong portcullis and two thick oaken doors, barred, bolted, and studded with iron nobs: immediately behind these are two guard-rooms, in which a dozen men-at-arms might long dispute the passage of a breach. A broad avenue of solid masonry succeeds, and leads straight forward to a second portcullis, and these again to a third; occupying altogether the whole depth of the castle. Most of these works are in a good state of preservation; in two of the portcullises, the original doors, wickets, knockers, gratings, still remain. Over the external gate, immediately under the battlements, about a dozen machicolations project boldly forward, from which red-hot lead or other missiles might have been discharged on the heads of assailants. These gates lead the visitor into a spacious court-yard, formed on three sides by the house, which is built in the very early Tudor style, and on the fourth by the castle. The court is neatly paved with red bricks fancifully disposed. The fronts of the house are stuccoed, but were formerly richly embossed and painted with quaint patterns. The entrance to the apartments is usually made by the back-front, through what was once the great dining-hall, but which is now used as a kitchen. This is a most interesting place, very spacious, being 90 feet by 30: it contains many fine specimens of old tables, safes, presses, &c., part of the original "Bullen" furniture. The walls appear formerly to have been covered with arms, and decorated with antlers and other memorials of the chase. Here I found several of the farmer's servants seated at one of the long tables, making havoc with a mutton pudding of enormous size, rivalled by a huge trencher of turnip-tops. A bulky apple-pudding was also in waiting. From this apartment I was conducted to the grand staircase, a very tawdry affair, utterly out of character with the rest of the building, and furnished with some execrable pictures,—one of them, a portrait, apparently, of Cooke as Richard III. I was told by the attendant it represented the cruel Henry VIII. himself. Leaving the staircase, several small anterooms are passed, panelled throughout with oak, and at length a door is reached at which the guide pauses, and with much solemnity announces the threshold of Anne Boleyn's bedroom. This is really an interesting apartment, beautifully panelled, and contains the original family chairs, tables, muniment-box, and Anne's bed, a very heavy affair, dressed with yellow damask hangings. A door in one of the corners opens into a strong dark cell, in which the girl told me Anne was imprisoned by Henry, and where by his order it was attempted to starve her to death. "They opened the door," she said, "and finding her not quite dead, were afraid, and took her to London, and cut her head off." The cell was probably a sort of strong cupboard for plate and valuables. In this apartment, several anterooms succeed, and the suite terminates in a grand gallery occupying the whole length of the building, in which the judicial meetings and social gatherings of the antient family were held. It is about 150 feet in length by 20 feet in width, with a vaulted roof and panelled throughout with rudely carved oak. On one side, placed at equal distances apart, are three recesses: the first, having a flight of three steps, is fitted up with elbowed benches, where the lord of the castle in old times held his courts, and where Henry is said, on the occasion of his visits, to have received the congratulations of the gentry. A second was occupied by the fire; and the third was used as a quiet corner for the old folks, while the younger ones frolicked through the mazes of a dance. At one end of this gallery a trap-door leads to a dark chamber, called the dungeon, in which the family are believed to have sheltered themselves in "time of trouble;" although it is manifest that the height of the rooms, compared with that of the building, must have betrayed its existence to even a careless observer. Besides the foregoing, there are numerous apartments inhabited by the tenant and his servants, but to which the public are not admitted.

[Queen Anne Boleyn.—From a Painting by Holbein.]

The interior of the castle is approached by a well-constructed winding stair in one of the towers, which opens into a number of little slit-windowed chambers, from which the archers could annoy their assailants. About midway the staircase opens into the narrow vestibule of the great state-room. This is a lofty and nobly-proportioned hall, of nearly the whole width of the castle, panelled with richly-carved mahogany, which, together with the furniture, has recently undergone a most judicious restoration. The Gothic tracery over the fireplace

is extremely beautiful, both in design and execution. It consists of two angels, each bearing two shields, showing the arms and alliances of, 1. The Carey and Boleyn families; 2. Carey and Waldo; 3. Boleyn and Howard; 4. Henry VIII. and Boleyn. Upon the walls a number of antient and modern family portraits are displayed, of little interest, save one of Anne Boleyn herself, and which my attendant said represented her in the dress in which she was executed. The countenance is of a placid, commonplace character. This room has a fine music-gallery, and a small withdrawing-room, now fitted up as a library. The needle-worked chairs, screens, and settees are most beautiful, and formed part of the original furniture. The place belongs at present to Lady de Waldo, a resident in London, to whom strangers are under much obligation for the liberality with which they are admitted whenever they apply.

In the church, to the left of the chancel, stands an altar-tomb to the memory of Sir Thomas Boleyn, first Earl of Wiltshire. The top slab is inlaid with a remarkably fine brass, representing the earl in the full costume of a Knight of the Garter. In the neighbouring church of Penshurst is also a brass monument for two of his sons, who died young.

Persons visiting this spot will find good accommodation at the old and most romantic village of Chiddingston, or Chiding-stone, about two miles distant. As its name indicates, it is connected with the earliest period of English history.

EDUCATION IN CHINA.

IN the 'Penny Magazine,' No. 276, we noticed the First Report of the "Society for the Diffusion of Useful Knowledge in China;" and having just received the Second Annual Report, we again take the opportunity of adverting to the Society's exertions. The views embodied in the Report, in relation to the great object of the Society, appear to be sound and practical, evincing that degree of enthusiasm which stimulates exertion, and avoiding the impetuous ardour that would subside into indifference on first encountering ordinary obstacles. The Committee do not diminish the magnitude of the discouragements which the work before them presents, but gather courage from what has taken place in India within the lapse of half a century. Fifty years ago the natives of India disdained the language of their foreign rulers, but it is now eagerly studied, and has become a source of life and light to thousands. And why may not China advance, with slow but certain steps, towards a change which would be but the forerunner of reformation in the moral and commercial polity of that singular empire, drawing its children into a closer intercourse with other members of the human family? To communicate to them our improvements in the useful arts, and to derive in return such practical knowledge as they exclusively possess, would be adding to the wealth and civilization of the world, to an extent which would occasion new social and commercial combinations amongst mankind. Two or three interesting facts are given in the Report, showing instances of the mutual interchange which would take place on a more extensive scale, if the desirable objects of the Society could be carried into effect. It is stated that the manufacture of Prussian blue had been introduced into China by a native, and that in consequence the cost of the dye had been considerably reduced to the poorer classes, whose dress is generally of that colour; and as an instance of the disadvantages of their limited knowledge, it is mentioned that the indigo of India, though cheaper and better than that of China, cannot be imported, the chemical solvent for it not being known to the Chinese. This is the more remarkable, as they are so skilful in dyeing as to be able to imitate nearly every colour with facility. The manufacture of porcelain is one of the arts which we already owe to the Chinese, and there are others which might be learnt from them; while such improvements as we could point out, with a view of economising their time, labour, and other resources, would add to their happiness, and prove beneficial to our manufacturing industry. Let no extravagant hopes, however, be entertained that these benefits can be introduced without many tedious difficulties being first overcome.

In the first place, the Society is obliged, owing to the prejudices of the Chinese, to carry on its printing operations at the British Settlement at Singapore, which, with Canton and Malacca, may be regarded as the outposts and depositories of European knowledge and intelligence. One of the greatest obstacles to the diffusion of useful information is the want of men capable of writing Chinese. The number who can do this intelligibly is very few, but a plan has been sketched out, and it is hoped that several treatises on history, geography, natural history, and the mechanical arts, will shortly appear. A general view of Universal History has already been completed; and a History of the United States and an Introduction to Universal Geography are in preparation. One of the most important of the Society's works is a Chinese Magazine, edited by Mr. Gutzlaff and Mr. Morrison, a son of the late Dr. Morrison. An Almanac, to be edited by one of the Society's secretaries, is announced. We have received copies of the Magazine, which appears well adapted for its object, and to have been conducted with great judgment. Subjects relating to history, geography, astronomy, literature, commerce, &c., are treated in continuity in successive numbers. We have a notice of Homer and Milton, "the greatest poets of the west." "English Female Society" is described, in which the means of elevating the female character are pointed out, and female infanticide and cramping the feet, practices which prevail in China, are contrasted with our conduct towards females in England, and it is shown that women, as the companions of their husbands, are more valuable members of society than when unworthily occupying an inferior position, as in China. In a "Dialogue between two Chinese," the general principles of philanthropy are explained, and the unreserved intercourse of nations is advocated. An article of similar character is given, apologising for frankness in pointing out errors, and on the impropriety of treating foreigners with contempt, such treatment being unmerited, and moreover opposed to the maxims of Chinese sages. An introductory article in the first number of the Magazine concludes by showing the opinion entertained by Confucius on the advantages of science, and recommending the cultivation of the mind as beneficial both here and hereafter. The notices of the steam-engine, the Liverpool and Manchester railroad, the importance of commerce, the diving bell, steam-navigation, are calculated to raise the opinions of the Chinese concerning the "barbarians." In one of the numbers, the exertions made by foreigners to save the lives of Chinese who are shipwrecked, are contrasted with the barbarous treatment experienced by foreigners in similar cases on the coast near Canton. Each number contains a portion of news and miscellaneous matter likely to be interesting to a Chinese reader. Maps of various countries are given at intervals, and each number contains a price-current.

Other kindred institutions are prosecuting the work of education and improvement in China. Their object is to train up the native youth in a knowledge of foreign languages and of sciences and arts, so that, having an accurate acquaintance with their mother-tongue, they may become the instruments of improving the intellectual character of their countrymen. The "Canton Society for the Diffusion of Useful Knowledge" will enable those who are zealous in this great task to avail themselves of the division of labour, by the production of suitable books to be used in carrying on Chinese education. The "Morrison

Education Society" was established at Canton in 1836, and we have received the first Annual Report. The first year had necessarily been occupied with many considerations of a preliminary nature, but the proceedings adopted are not without considerable importance in reference to future exertions. The work is beset with difficulties which only the purest benevolence united with a fervent determination would venture to encounter. It is not easy to find men, possessing the requisite ability, willing to devote themselves to the task of learning a most difficult language. The Society, however, have succeeded in engaging such an individual, a native of the United States, and have agreed to provide him with a residence and the means of pursuing his studies. The language will form the principal object of his attention for four or five years, and will occupy much of his time for about the same period afterwards. Elementary books are to be prepared, and a corps of native teachers trained, ere the work can be said to have commenced. Application has been made to the British and Foreign School Society for a teacher to be associated with the gentleman expected from the United States. Five youths are at present under the care of the Morrison Society, and four of them are learning both Chinese and English. In the school at Macao, under the superintendence of Mrs. Gutzlaff, twenty children are taught Chinese by a native teacher.

The Report of the Morrison Society contains a statistical survey of the actual state of education in the Chinese empire. After noticing the higher branches of education, the subject of primary instruction is considered, and the difficulty of gaining minute and accurate information is pointed out. But as approximations to truth are better than vague and indefinite notions, the Committee published the result of their inquiries. The population of the Chinese empire amounted in 1812 to 362,000,000. The antient division of the people into four classes, scholars, husbandmen, mechanics, and merchants, still exists to a certain extent, but subdivisions have taken place, through the operation of time and circumstances, even in China. The inquiries of the Society were confined to the six provinces nearest Canton. In the province of Nanhae "the people are remarkable for their literary spirit;" and, excepting agriculturists, gardeners, fishermen, with those who are engaged in providing fuel, nearly all the men are able to read; but in other districts not more than four or five tenths, that is, only one-half, can read. In Nanhae two or three-tenths of the classes above the position of labourers devote themselves entirely to literary pursuits for life; but in the five other provinces only one or two in a hundred apply themselves wholly to study. The number of females able to read is ascertained to be very small, probably not exceeding one in a hundred; but the Report says that "amongst the most opulent people in Canton, a few schools have been opened under the superintendence of female teachers. The number of pupils in these schools has usually varied from ten to forty."

ON REFLECTING MIRRORS.

The feeling which prompts us to view ourselves in a looking-glass is so wide-spread in its operation, that we may perhaps call it a pardonable vanity. But whether it be or be not deemed pardonable, the world will, we presume, continue to seek this sort of silent reflection—not of their conduct—but of their faces; for this glassy monitor is viewed with that respect which we all agree to award to one who uniformly speaks the truth.

We have evidence that the ancients were as desirous of obtaining a view of their own faces as are we moderns; for long before glass mirrors were known, various contrivances were adopted by which mirrors were obtained. We may, not without reason, infer that the first mirror was a crystal stream, whose surface yielded a reflexion to the wandering and perhaps admiring eyes of many a Narcissus of old; such a mirror can, however, only be used by looking perpendicularly downwards.

There is a passage in the 20th chapter of Exodus which Beckmann takes as a proof that mirrors, made of polished brass, were used by the females of those days. Moses ordered certain brass mirrors, which were brought to him, to be made into washing-basins, or lavers, for the priests. Some commentators on the Bible think, that instead of causing the mirrors to be made into basins, they were merely hung round the basins as a decoration. Be this as it may, there is proof that brass mirrors were very often used among the early nations. Sometimes the insides of drinking-vessels were cut so as to present a number of flat surfaces, which, being polished, afforded multiplied reflexions of the face of an individual while drinking.

Praxiteles, in the time of Pompey, is said to have made the first mirror of solid silver. It is not surprising that this brilliant metal should have been employed for such a purpose, as its white colour gives it peculiar facility for reflecting the light that falls upon it: the dazzling display in the shops of our silversmiths affords us proof of this. At one period silver mirrors were a distinct branch of manufacture at Rome, the demand for them having become so considerable as to make such a branch of trade profitable.

Brass and silver were by no means the only metals employed for mirrors. Steel, copper, and gold were also used for that purpose; but the two latter are obviously inferior, from their colour, to silver. An ancient mirror, found at Brundusium, was analyzed by a German chemist, and found to consist of a mixture of copper and tin. Another was found to show indications of copper, antimony, and lead. The use of mirrors made of some one or more of the metals we have now mentioned was common in Europe down to the reign of Louis XII., whose queen had one.

Stone, as well as metal, has been made available for the manufacture of mirrors. Mirrors were sometimes made of obsidian, a kind of vitrified lava, which was susceptible of receiving a polish. If such a substance were at all efficient in affording a reflecting surface, it is probable that much larger mirrors could be obtained by these means than by the employment of metal. It is reported of the Emperor Domitian, that when he suspected plots against him, he posted himself in a position where he could, without being seen, witness what was passing in another apartment, by reflexion from mirrors of phengites, which is supposed to have been a species of sulphate of lime. Large mirrors do not, however, appear to have been deemed indispensable, for small gems were sometimes employed for that purpose. The Emperor Nero used a polished emerald as a mirror, by which he could witness the combats of the gladiators:—some translators, however, consider the original passage to speak of the emerald as a lens through which light passed, instead of a mirror from which light was reflected.

When the Spaniards conquered South America, they found that the natives employed mirrors made of polished black stone, which had the appearance of being a vitrified lava. Among these were mirrors of a character which is well known in our own day, but of which we have no mention in the ancient writers,—that of convex and concave mirrors. These forms have a remarkable effect upon the dimensions of the reflected image of an object. The plane or flat mirror yields a reflected image whose size may be always known by this rule:—it appears as large to an observer as a real object would which was situated as far behind the mirror as the observer is before it; thus, if the observer be two feet from the mirror, the reflected image appears four feet distant, and so on. A convex mirror gives a reflected image which is smaller, for the same distance, than that from a plane mirror; the

diminution increasing in proportion to the convexity of the mirror. A concave mirror gives an enlarged image of an object, which enlargement is greatest when the observer is at a particular spot. If we suppose the mirror to have been a portion of a hollow globe from which it has been cut, and the eye to be as far from the mirror as is equal to half the diameter of that globe, the entire surface of the mirror will reflect the eye itself, and nothing else; this will give some idea of the magnifying power of such a mirror. The laws which regulate the reflexion of light, and the formation of reflected images, constitute a department of optical science which is too extensive to be entered upon here.

As soon as the art of making glass was discovered, it is natural to suppose that attempts would be made to form mirrors of that substance. We know that a slight reflexion of the face can be obtained from glass even in a transparent state. If windows are closed by shutters on the outside, we can obtain a tolerable reflexion from the inner surface. From the descriptions of some antient writers, it would appear that a kind of black glass was sometimes made to serve the purpose of mirrors, and that at other times transparent glass was covered on one side with a sort of black foil, which, by preventing light from being transmitted through the glass, allowed the reflected light to be more distinct.

In the middle ages, when arts of almost every kind sank to a low ebb, the use of glass mirrors, even of so imperfect a kind as those we have just described, is not alluded to by any writer. But in the thirteenth century a decided improvement was made known. Peckham, or Peccam, an English monk, published a treatise on optics, in which he spoke of the nature of light when reflected from glass mirrors which were coated on one side with lead. It appears that as soon as the glass was made and solidified, and while it was still hot, melted lead was poured on one surface, by which, when cold, an approximation towards a modern looking-glass was produced. An improvement on this method was to pour melted tin on the glass: tin is at all times more brilliant than lead, and calculated to afford a better reflexion.

In the middle of the last century small convex mirrors were prevalent in Germany, and were produced in a remarkable way. A globe of glass was blown in a manner similar to the glass-blowing of our own day, and a certain kind of melted metal, whose nature is not now exactly known, was introduced through the tube into the globe, and there worked about until every part of the inside of the globe was covered with metal, by which a globular mirror was produced. This part of the process must have somewhat resembled the making of artificial pearls, in which a pearl-coloured liquid is introduced into hollow glass beads. The globular mirror was then cut up into a number of little convex mirrors, two or three inches in diameter, which were fitted into frames, and sold as curiosities or toys, under the name of *ochsenaugen*, or bulls' eyes.

Looking-glasses, such as we have them at the present day, appear to have originated at Murano, in Italy, in the sixteenth century. Then it was that we have the first certain evidence of mercury, or quicksilver, being employed as a coating for one side of a piece of glass. The fitness of mercury for this purpose arises from three causes; its brilliant whiteness, its fluid state, and its property of combining with other metals. Mercury (which is the only metal that we find in a fluid state at ordinary temperatures) will not adhere to glass unless some third body be present. When this third body is tin, in the form of a thin sheet, the mercury combines with the tin, and both together adhere to the glass. This is the rationale of coating a glass with mercury; a process which is termed *silvering*, but very erroneously, since no silver whatever is employed in the process.

During the seventeenth century nearly all the looking-glasses employed in Europe (which number was, however, probably small) were made and sold by the Venetians. But about the year 1690 the French glass manufacturers entered the lists against their Italian neighbours, and produced looking-glasses whose dimensions excited general surprise, some of them being as large as seven feet by four.

The English took up this branch of manufacture after the French, and gradually attained great excellence in it. At present silver looking-glasses (to use a common term) are made of enormous dimensions, sometimes amounting to thirteen feet by eight. The process of silvering is simply this.—On a perfectly flat stone is laid a sheet of tinfoil, which is spread out smooth: a quantity of mercury sufficient to cover the foil is poured on it. The glass, which must previously be made perfectly clean, is then placed on the mercury, not by being laid directly down on it, but by being slid or pushed on, by which much of the superfluous mercury is driven off. A number of weights are now placed on the glass, by which all the mercury, except a thin film, is pressed out from between the glass and the foil. After a certain time these weights are removed, and the glass is placed upon its edge, when, after draining for two or three days, the mercury is found to have combined with the tin, and both of them to have adhered to the glass.

The perfection to which the art of making mirrors of glass has arrived has caused the entire disuse of solid metal mirrors for purposes of ornament. But that which luxury has discarded, science has laid claim to. When Galileo, two centuries ago, discovered, or rather invented, the telescope, he used transparent lenses, through which light passed to the eye; but the scientific ardour of Newton and Gregory induced them to try whether reflected light might not be made available for the production of a telescope. To accomplish this it was necessary to prepare concave mirrors, such as should yield a clear and brilliant reflexion.

These mirrors, or specula (*miroir* is the French, and *speculum* the Latin name for these reflectors), were made of a mixed metal, whose ingredients were chosen in such proportions as to form a brilliant white metal. The best ingredients are said to be: 32 parts of copper, 15 of grain-tin, and 2 of arsenic. These materials, when melted, are poured into a mould formed for that purpose, and, when cold, the cast is ground and polished, on the round side, if a convex mirror is required, and on the hollow side, if a concave. Sir W. Herschel made for his large telescope a speculum four feet in diameter, and which weighed 1200 pounds.

The convex mirrors which were in use a few years back as articles of domestic furniture are not metallic, like the specula of the optician, but are made of glass covered with an amalgam of mercury and tinfoil on the concave surface. Concave mirrors of a similar kind are also sometimes seen. Of these the glass is formed in the same way as the former, but the mercury is applied to the convex instead of to the concave surface.

Mirrors have frequently been used as burning instruments, by reflecting the heat of the sun's light to a focus. Some of the contrivances have been very ingenious.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

LONDON:—CHARLES KNIGHT & CO., 22, LUDGATE STREET.

Printed by WILLIAM CLOWES and SONS, Stamford Street.